DEVELOPMENT OF QUALITY CULTURE IN THE CONSTRUCTION INDUSTRY

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ABSTRACT: The construction industry is being viewed as one with poor quality emphasis compared to other sectors like the manufacturing and service sectors. Many criticisms have been directed to the construction industry for generally shoddy workmanship. It not only the final product that is subject to criticisms but the processes, the peoples, the materials etc are under tremendous pressure for better quality in construction. Total quality management (TQM) is increasingly being adopted by construction companies as an initiative to solve quality problems in the construction industry and to meet the needs of the customer. TQM has the potential to improve business results, greater customer orientation and satisfaction, worker involvement and fulfilment, teamworking and better management of workers within companies. However, construction firms have been continually struggling with its implementation. Cultural change is being recognised as an important aspect of total quality development. However, the issue surrounding quality culture has not been comprehensively studied. This paper will discuss the issues of quality culture and its development in the construction industry.

Keywords: Quality Management, Quality Culture, Construction Industry

1. INTRODUCTION

The construction industry is being viewed as one with poor quality emphasis compared to other sectors like the manufacturing and service sectors (Kubal, 1994; Kanji and Wong, 1998; Wong and Fung, 1999). Many criticisms have been directed to the construction industry for generally shoddy workmanship. It not only the final product that is subject to criticisms but the processes, the peoples, the materials etc are under tremendous pressure for better quality in construction.

Total quality management (TQM) is increasingly being adopted by construction companies as an initiative to solve quality problems in the construction industry and to meet the needs of the customer continuously (Fung and Wong, 1995; Wong and Fung,1999; Kanji and Wong, 1998; Jido, 1996; Sommerville, 1994). TQM has the potential to improve business results, greater customer orientation and satisfaction, worker involvement and fulfilment, teamworking and better management of workers within companies. However, construction firms have been continually struggling with its implementation (Haupt and Whiteman, 2004). The implementation of a TQM philosophy within the organization requires a cultural change (Sommerville et al, 1999) and its being recognised as an important aspect of total quality development (Adebanjo and Kohoe, 1998).

A cultural and behavioral shift in the mind-set of all participants in the construction process especially top or senior management is necessary if the construction industry is to improve its performance (Kanji and Wong, 1998; Love and Heng, 2000; Haupt and Whiteman, 2004).To bring about this change the organization must identify the elements that contribute to the development of quality culture in construction organization.

2. CHARACTERISTIC OF THE CONSTRUCTION INDUSTRY

The construction industry has numerous problems because of its complicated nature of operation (Kanji and Wong, 1998). This industry is comprised of a multitude of occupations, professions and organizations (Wong and Fung, 1999; Kanji and Wong, 1998; Sommerville,1994). They are involved in the different phases of a construction project, which, include: feasibility, development, finance, concept development and review, estimate, detailed engineering, procurement, construction and start-up (Schultzel and Unruh,1996). The client, consultants, contractor and sub-contractors of a construction project all have a role to play in delivering a quality project. Failure of any of the parties will seriously affect the quality of the final project (Kanji and Wong. 1998).

Rowlinson and Walker (1995) point out that the construction industry is also characterized by its non-standardization. Production processes are to some extent different from one another. Hence, no universal standard or specification can be applied to the product, which leads to difficulties in quality assurance. Furthermore there are excessive changes to the details of the design of a project are typical throughout the construction process. They may be attributed to the lack of buildability of the design produced or variations by the contractors for the sake of speed and cost of production. Quality is often at risk because of the excessive changes (Kanji and Wong, 1998).

3. QUALITY IN THE CONSTRUCTION INDUSTRY

Quality has a three-fold meaning in construction (Hart, 1994): it means getting the job done on time; it means ensuring that the basic characteristics of the final project fall within the required specifications; it means getting the job done within budget. A quality construction project has to comprise all these dimensions. Actually, quality in construction is directly connected with conformance to specifications and fitness for use.

Aggressive competition, both at the regional and international level, has imposed higher quality levels in almost all business activities and sectors. To ensure their position in the emerging international market, construction firms in many countries are actively engaged in trying to achieve internationally accepted quality levels based on two major framework of TQM – the ISO 9001 family of quality standard, and quality award criteria. There are differences in the degree of adoption of TQM among different countaries. Studies indicate that TQM reached an integrated set of commonly accepted practices as a result of the wide acceptance of these two frameworks (Wiele, 1998 in Kujala, 2002).

Examples of companies adopting TQM to improve their performance are Morrison Construction Group (Sommerville, 1994), Takenaka Corporation (Jido, 1996) and Shui On Construction Co. (Fung and Wong, 1995). Higher customer satisfaction, better project quality and higher market share often come with the adoption of TQM by such companies (Wong and Fung, 1999).

4. QUALITY CULTURE

There is a multitude of definitions of culture, each with its own slight variation depending on the focus of study, but most suggest culture is the pattern of arrangement, material or behaviour which has been adopted by a society (corporation, group, or team)

as the accepted way of solving problems. As such, culture may be taken to include all the institutionalized ways and the implicit beliefs, norms and values and premises which underline and govern behaviour (Ahmed et al, 1999). So, culture is the key factor underpinning success interms of developing the necessary commitment to any form of change (Kotter and Heskett, 1992). Quality culture is the main ingredient in a successful TQM program (Westbrook, 1993). An organization with a 'quality culture' can be defined as one having "clear values and beliefs that foster total quality behaviour" (Linklow, 1989). Changing corporate culture or organizational culture is increasingly recognized as one of the primary conditions for successful implementation of total quality management (Hildebrandt *et al*, 1991).

The importance of an appropriate quality culture is recognized by most prominent quality experts, e g. Deming, Juran and Crosby. Their works identify a number of cultural elements that must undergo change in order that a continuous quality improvement philosophy can be sustained. They stress the importance of building a quality culture by changing perception of, and attitudes towards, quality as a prerequisite to major quality improvement efforts (Sommerville and Sulaiman, 1997). Therefore, changing culture is partly the purpose of TQM itself, but it is also in many cases a necessary prerequisite to attempt to install TQM (Pike & Barnes, 1994).

5. DEVELOPMENT OF QUALITY CULTURE IN THE CONSTRUCTION INDUSTRY

Studies have indicated that TQM is likely to fail 18-24 months into the endeavour irrespective of the approach used (Smith et al., 1993). One of the common reasons for the failure of TQM is the cultural position of the company. If the TQM effort is inconsistent with the organisational culture, the effort will be undermined (Dean and Evans,1994 in Adebanjo and Kehoe, 1998). The Egan Report on Rethinking Construction (Egan, 1998) stresses the need for the industry to make substantial changes in its culture and structure, as a driver for improvements inefficiency, quality and safety. However, addressing culture change has not been easy since most people are unclear about exactly what this means and how it should be approached (Smith et al, 1993). Williams et al. (1993) in Adebanjo and Kehoe (1999) addressed that, despite the growing awareness of cultural issues, comparatively little attention has been paid to the practical, day-to-day processes involved in creating, managing and changing organisational culture.

Although culture is unique to each organisation, it is generally agreed that certain elements commonly define quality culture. There are ten (10) important element of quality culture which TQM practitioners generally agree should be present in organizations whose culture complements TQM implementation (Ahmed et al, 2005; Haupt and Whiteman, 2004; Rita, 2003; Bubshait, 2000; Ngowi, 2000; Zhang, 2000; Adebanjo and Kehoe; 1999; Dellana and Hauser, 1999; Shammas-Toma et al, 1996; Ahire at el, 1996). This include leadership and top management commitment, customer management, training and education, teamwork, people management and empowerment, supplier partnership, quality planning and strategic, process management, rewards and recognition and effective communication.

5.1 Leadership and Top Management Commitment

The literature of TQM emphasizes the critical role of leadership in the implementation process of TQM. TQM requires increased effort from everyone in the company to satisfy the customer continuously (McAdam et al., 2002). Without clear and consistent quality leadership, quality cannot hope to succeed (Everett,

2002). This requires that quality leadership to be made a strategic objective (Feigenbaum 1991). This means that the leader provides the suitable environment to provide the most comfort to the group members to improve performance and productivity (Leiter et al., 2002)

Top management commitment has been identified as one of the major determinants of successful TQM implementation. According to Juran (1974) most of the problems associated with quality are attributed to management. This indicates that successful quality management is highly dependent on the level of top management commitment. This requires that top management commitment to quality must convey the philosophy that quality will receive a higher priority over cost or schedule, and that on the long run, consistent and superior quality will lead to improvement in cost and delivery performance. Deming considered quality responsibility is of the top management. Atkinson (1990) points out that 80 percent of TQM failures are mainly attributed to a lack of requisite commitment of top management.

5.2 Customer Management

Customers are an economic asset. They're not on the balance sheet, but they should be (Claes Fornell, 1994 in Kanji et al., 2000). Deming calls for total transformation of existing management methods to achieve a culture of continuous improvement for continual customer satisfaction. TQM requires that all efforts in the organization to focus on customer satisfaction through a customer-oriented right-first-time and every time approach.

The emphasis on customer satisfaction or customer-driven quality is considered by many gurus and writers as a major success of the quality management effort (Deming, 1986; Crosby, 1989; Rao et al., 1996; Spring et al., 1998; Oakland, 2000; Kanji, 1998, Li et al., 2001). A strategic concept of customer satisfaction is concerned with achievements such as customer retention and market penetration (Rao et al., 1996; Allred, 2001). Zairi (1994) considers measuring customer satisfaction as a cornerstone of TQM.

5.3 Training and Education

Ahire et al. (1996) believe that employee empowerment and involvement framework is not effective unless employees have received formal, systematic training in quality management. Ishikawa (1985) states that quality begins and ends with training. For McAdam et al., (2002) training and development are key components of all TQM initiatives.

Firms that establish workplace education programmes report noticeable improvements in their workers' abilities and the quality of their products (Cebeci and Beskese, 2002). Feigenbaum (1961) points out that the importance of training is to ensure that the skills of the workforce do not become obsolete in an environment of change and an understanding and attitude of quality is developed and maintained.

According to Rao et al., (1996) TQM training should be directed at all levels of the organization since senior managers who understand the TQM process are not only able to break down barriers within their own organizations, but they can also serve as role models for others who may resist to change. In his empirical research of developing a TQM instrument, Zhang et al., (2000) reports that organizations have realized that education and training are an integral part of the TQM initiative. Several recent empirical studies revealed that training and education are critical to

successful TQM implementation (Rao et al., 1999; Zhang et al., 2000; Ahire et al., 1996).

5.4 Teamwork

Teams are a major part of any Total Quality Management effort because teamwork enables various parts of the organization to work together to meet customer needs in ways that can't be done through individual job performance (Rao et al., 1996).The ongoing development of teams provides a much richer mix of skills in the thinking and processes amongst many of the company management and those holding supervisory roles of employees.

Methods such as cross-functional teams, within functional teams, quality control circles, voluntary teams, and suggestion activities can be used for encouraging employee participation (Zhang et al. 2000). Each type of team has its advantages and disadvantages, and works best in a particular organizational setting.

In his business excellence model, Kanji, (1998) considers teamwork as a core concept to achieve the principle of people based management. In Oakland's (2000) TQM model teams are considered one of the major components of the model. He states that good teams have three main attributes: high task fulfilment, high team maintenance and low self-orientation. Teamwork is universally accepted as the vehicle for change and the organisational mechanism for involving people in quality improvement.

5.5 People Management and Empowerment

While management's role is critical to achieving total quality, it is often the most overlooked part of the process. Employee involvement evolved out of business's need to improve performance. The impact of human resources in the organization depends on the kind of empowerment given to them. Kanji (1990) defines TQM as "to obtain total quality by involving everyone's daily commitment". According to Lawler et al., (1992) employee involvement programmes have a positive effect on company performance and internal business conditions. Thus employee involvement programmes can be seen as opportunities for organizations in today's competitive environment. Some authors consider employee involvement and commitment to the goals of the TQM process as a condition to its successful implementation (McAdam et al., 2002).

Gufreda and Maynard (1992) described employee involvement as the process of transforming an organisation's culture to utilise the creative energies of all employees for problem solving and for making improvements. Mak (2000) summarizes the critical ideas in Japanese management and derives several principles related to people management. He states that management should pursue the Tao "road" of people-based management to that recognizes the importance of daily interaction with all employees and a shared identity with them in solving work problems. In another study, Zhang et al., (2000) found that employee participation is a critical construct for successful implementation of TQM.

5.6 Supplier Partnership

Supplier quality management is an important aspect of TQM since materials and purchased parts are often a major source of quality problems (Zhang et al., 2000). Poor quality of supplier products results in extra costs for the purchaser. It follows that a substantial portion of quality problems will be due to the supplier. In order for both parties to succeed and their business to grow, a partnership is required. Flood

(1993) states that companies should treat their supplier as long-term business partners.

Many authors advocate that companies must establish supply chain partnerships to motivate suppliers to provide materials needed to meet customer expectations (Clifton, 2001; Jabnoun, 2000). Wong et al., (1999) state that partnership with suppliers will lead to quality results from the supply chain. According to Kanji and Wong (1998) the creation and enhancement of the customer-supplier partnership is a major quality practice. This is also emphasized by Wong and Fung (1999).

The quality gurus believe that supplier should be viewed as an integral part of the organization's business operations (Ishikawa, 1985; Deming, 1986; Crosby, 1989). Crosby (1989) states that one of the most important parts of the quality improvement process is the relationship between supplier and buyer. Organizations world-wide are using teams to improve the quality of their products and services and recognize that this teamwork should include suppliers (Wong, 2000)

5.7 Quality Policy and Strategy

According to Juran and Gryna (1993), strategic quality management is the "process of establishing long-range quality goals and defining the approach to meeting those goals". Quality gurus and writers strongly emphasize the importance of strategic planning process based on total quality (Deming, 1986; Crosby, 1979; Juran; 1974; Oakland, 1993; Ahire et al., 1996; Martinez-Lorente et al., 1998 and Sureshchandar et al, 2001). Crosby (1979) views quality policy as a standard for practice that sets priorities of what to do and what not to do, he states that without a formal policy, people will develop their own individual, and differing standards of practice.

Oakland (2000) considers a sound quality policy, together with the organization and facilities to put it into effect, is a fundamental requirement, if a company is to begin to implement TQM. For Rao et al., (1999), strategic quality planning demands the integration of quality and customer satisfaction issues into strategic and operational plans. Olian et al., (1991) point out that attention to policy development is a critical factor for success in quality management as best organizations use the process of policy development to ensure employee understanding of the organization's objectives and how to contribute to achieving the objectives. Juran (1991) emphasized that most successful TQM organizations ensure the quality goals are incorporated in the overall business plan.

5.8 Process Management

All organizational activities can be considered as processes. Therefore, if the aim of the TQM initiative is to achieve overall quality performance, then process management appears to be an essential requirement. Process management is the concern of quality of conformance. One important matter in process management is to ensure that process capability can meet production requirements (Zhang et al., 2000).

Oakland (1993) believes that process management is the key to get employees responsible for what they are doing in relation to customer satisfaction. McAdam (1996) states that process management (process-based approach) improves customer satisfaction and overcomes the problems associated with management through functional based approach.

5.9 Rewards and Recognition

An important feature of any quality improvement programme is showing due recognition for improved performance by any individual, section, and department or division within the company (Dale and Plunkett, 1990 in Zhang et al., 2000). Crosby (1989) considers recognition as one of the most important steps of the quality improvement process. Kemp et al., (1997) consider the recognition procedure as basic to increasing the involvement of all employees in the operation of the business. Zhang et al., (2000) state that recognition and reward activities should effectively stimulate employee commitment to quality improvement.

To effective support organization's quality efforts, they need to implement an employee compensation system that strongly links quality and customer satisfaction with pay (Brown et al., 1994). Knouse (1995) recognizes the importance of reward and recognition systems in TQM processes and attributes any failure of the system to the methods of implementation. Many other authors highlight the importance of rewards and recognition in the TQM process (Rao et al., 1996, Rao et al., 1999; Li et al., 2001; Martinez-Lorente et al., 1998). However, rewards do not have to be monetary (Zhang et al., 2000). Recognition for outstanding customer service and support, for being on a team that delivers continual process improvement, and for initiating new activities within organizations are all important rewards in any organization.

5.10 Effective Communication

According to Kanji et al.,(1993) effective communication is part of the cement that holds together the bricks of the total quality process. Crosby (1979) suggests that in each department there should be a quality council, which would include a quality professional who would act as a regular centre for communication relating to the programme. Effective communication is seen as a means for keeping momentum and morale for quality improvement process. It is important in directing employees towards the corporate expectations (Thiagarajan et al., 2001). Many organizations use a variety of communication techniques.

Effective communication is important in the employee empowerment process. The use of teams is a successful means for cross-functional communication in organizations. Multi-tiered management structure inhibited communication. Effective communication is important for the success of any quality initiative (Martinez-Lorente et al., 1998; Sureshchandar et al., 2001). Smith (1994) points out the importance of communication across the organization to provide continuous customer satisfaction. Communication about TQM can cover a broad range of activities, including face-to face conversation, group or site visits, videotapes, brochures, booklets, company newsletter, advertising campaign-anything that talks openly about the on going quality initiative.

Total quality management will significantly change the way many organizations operate and "do business". This change will require direct and clear communication from the top management to all staff and employees, to explain the need to focus on processes. Everyone will need to know roles in understanding processes and improving their performance (Oakland, 2000). The key medium for motivating the employees and gaining their commitment to TQM is face-to-face communication and visible management commitment (Oakland, 2000).

6. CONCLUSION

The construction industry has numerous problems in getting quality performance as a result of the complicated nature of the industry. TQM is being increasingly applied to the construction company to solve quality problem. The implementation of a TQM required a culture change and change in management behaviour. The organization need to shift from their current culture to a TQM culture that focuses on quality as a key strategy. A review of literature identifies ten important culture elements that contribute to successful implementation of TQM, which include leadership and top management commitment, customer management, training and education, teamwork, people management and empowerment, supplier partnership, quality planning and strategic, process management, rewards and recognition and effective communication. These dimensions of quality culture should be adopted by the construction organization in implementing TQM for continuous improvement.

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